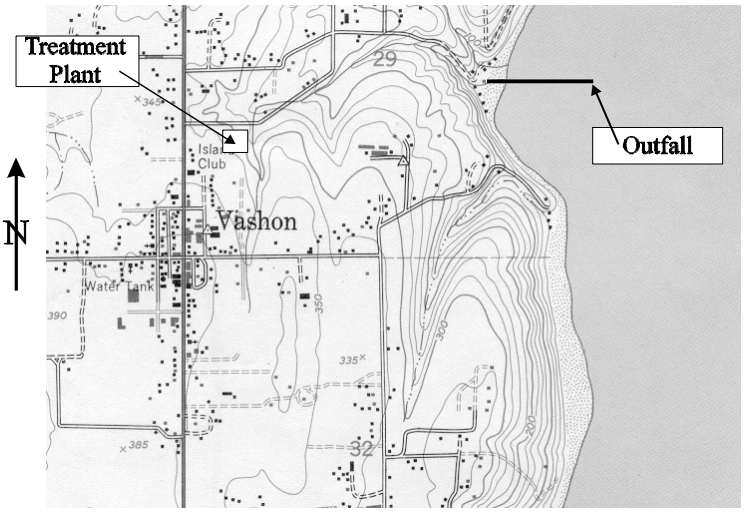
FACT SHEET FOR NPDES PERMIT WA-002252-7
VASHON WASTEWATER TREATMENT PLANT



VASHON SEWER DISTRICT & VICINITY

SUMMARY

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) Permit for the Vashon Wastewater Treatment Plant. The fact sheet explains the nature of the proposed discharge, the Department of Ecology s (the Department s) decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. The fact sheet and draft permit are available for review (see Appendix A--Public Involvement for more detail on the Public Notice procedures).

GENERAL INFORMATION		
Applicant	King County Dept of Natural Resources & Parks Wastewater Treatment Division 201 - S. Jackson St. Seattle, WA 98104-3855	
Facility Name and Address	Vashon Wastewater Treatment Plant 9621 - SW 171 St. Vashon, WA 98070	c/o King County 201-S. Jackson St MS KSC-NR-0500 Seattle, WA 98104
Responsible Official	Pam Bissonette, Director	(206) 296-6500
Type of Treatment:	Oxidation Ditch (Secondary treatment, Extended Aeration)	
Discharge Location	Puget Sound, Class AA Marine Latitude: 47° 27' 09" N	Water Body ID No. WA-PS-0240 Longitude: 122° 26' 19" W.
Plant Contact	Rick Butler	Phone (206) 684-2400

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix C--Response to Comments.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The Vashon Sewer District was formed on September 22, 1947 with sewer service being first provided in 1955. The first treatment plant consisted of an Imhoff tank, trickling filter, secondary clarifier and discharge to Gorsuch Creek adjacent to the plant. The plant was expanded and upgraded in 1976. The current oxidation ditch facility together with an outfall to marine waters was completed at that time.

In November, 1999, King County assumed ownership and operation of the Vashon treatment plant from the Vashon Sewer District. Since that time, King County has made a number of

interim improvements to the plant, including headworks modifications to prevent overflows, and a sludge storage tank for the solids handling facilities. Ultraviolet disinfection has just been installed to replace the old chlorination system. Currently King County is completing a facility plan to identify problem areas and to explore alternatives for expanding and upgrading the plant.

COLLECTION SYSTEM STATUS

Infiltration has been an ongoing problem in the collection system since the first collection sewers were installed. Much of the older part of the collection system consists of 3-foot sections of concrete pipe with mortared joints. Various infiltration/inflow studies have been done on the collection system, and the Vashon Sewer District has implemented portions of the recommendations in an attempt to reduce extraneous flows. Although King County has taken over ownership and operation of the treatment plant, ownership and maintenance of the collection system remains the responsibility of the Vashon Sewer District.

As part of their facility planning study, King County is currently doing a sewer system evaluation survey to determine whether it is more cost-effective to do additional I/I work on the collection system, or to transport and treat the extraneous flows.

In order to address health hazard problems, a new sewer interceptor line has been constructed to serve the Bunker Trail community at the north end of Vashon Island, with wastewater from that area transported to the Vashon treatment plant. At this time the new interceptor is complete and sewage flows are beginning to be diverted to the Vashon plant.

TREATMENT PROCESSES

The wastewaster treatment facility consists of a headworks incorporating a grit channel and comminutor for grinding influent solids; in addition a bar screen on a bypass channel is also incorporated in the headworks. Secondary treatment is accomplished in a circular oxidation ditch with clarification occurring in a secondary clarifier located in the central area of the ditch. Disinfection of the effluent is by the use of ultraviolet radiation, with final disposal by a submarine outfall with diffuser in Puget Sound.

King County, in their facility planning process, is making plans to expand and upgrade the treatment plant. Currently, the recommended alternative is to construct another larger oxidation ditch and two final clarifiers. Portions of the existing plant will be utilized as well. The outfall will also be extended to deeper marine waters.

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility via an eight inch diameter outfall with three 4-inch diffuser ports on 7-foot centers, into Puget Sound. The outfall terminates about 1300 feet from the mean lower-lower water (MLLW) beach line, at a depth of minus 41 feet MLLW. A schematic drawing of the existing outfall, together with the proposed dilution zones, can be found in condition S1.B. of the proposed permit. A location map showing the outfall is found on the cover page of this fact sheet.

King County has conducted a study of the existing outfall for their facility planning effort, and has tentatively decided to extend the outfall into deeper waters of Puget Sound at the time the plant is expanded.

RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the secondary clarifier, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum and screenings are drained and disposed of as solid waste. Solids removed from the secondary clarifier are dewatered in a belt filter press, then are transported to the large regional King County wastewater treatment plant at Renton for further processing and disposal, reuse, or land application, together with the biosolids from the Renton plant.

PERMIT STATUS

The previous permit for this facility was issued on June 21, 1996. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, Fecal Coliform bacteria, pH and Total Residual Chlorine.

An application for permit renewal was submitted to the Department on October 12, 2000 and accepted by the Department on December 22, 2000. The existing permit was administratively extended on March 28, 2001, prior to its expiration date of April 15, 2001.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on May 29, 2001. This was a compliance inspection with sampling.

During the history of the previous permit, numerous effluent violations were reported in the Permittee's monthly discharge monitoring reports. "Appendix E - Effluent DMR Data" shows a summary of the reported data for the five year period June, 1996 through June, 2001. At the bottom of that spreadsheet, the maximum, minimum and average values are shown, together with permit limitations and design data. Shaded values indicate permit violations or exceedances of design criteria. The black line across the lower third of the sheet represents the date when King County assumed ownership and operation of the facility from the Vashon Sewer District.

Since the King County assumption of the plant, compliance has improved, but some violations continue to plague the facility, especially during wet weather periods. The facility has some design limitations and is in need of expansion and upgrade in order to consistently comply with all permit limitations.

King County has completed a number of temporary or interim plant improvements, and is proceeding with facility planning to upgrade and expand the plant with a new oxidation ditch, new clarifiers and improved marine outfall and diffuser. The schedule to upgrade the plant is contained in a consent order between the Department and King County.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. Appendix E summarizes these data for the past five years. At the bottom of the tabulation, maximum, minimum and average reported values, together with permit limitations and design parameters, are shown. Additionally, selected effluent parameters are shown graphically in Appendix F. These data provide a comprehensive characterization of the quality of the wastewater. A brief summary of selected parameters, taken from Appendix E, is shown in the table below:

Table 1: Wastewater Characterization

Parameter	Concentration or Quantity
Effluent BOD_5 concentration	13 mg/L
Effluent TSS concentration	15 mg/L
Effluent Fecal Coliform	61/100 ml (avg of monthly geometric Means)
Flow, monthly average	0.103 mgd

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the Vashon Island Wastewater Treatment Plant Facilities Plan (Jan 2001 Draft), prepared by Tetra Tech/KCM, and are as follows:

Table 2: Design Standards for the Vashon WWTP.

Parameter	Design Quantity
Monthly average flow (max. month)	0.264 MGD
BOD_5 influent loading	275 lb./day
TSS influent loading	275 lb./day

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
Total Residual Chlorine	Not applicable as ultraviolet disinfection has been installed.

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (0.264 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 66 lb./day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 99 lbs/day.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall

constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

The proposed mixing zones for this permit are shown schematically in condition S1.B. of the draft permit.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Puget Sound which is designated as a Class AA receiving water in the vicinity of the outfall. Other nearby point source outfalls include the Miller Creek Wastewater Treatment Plant located about 3.5 miles to the east-southeast, and the Salmon Creek Wastewater Treatment Plant located about 4 miles to the northeast. Characteristic uses include the following:

> fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	14 organisms/100 mL maximum geometric mean
Dissolved Oxygen	7 mg/L minimum
Temperature	13 degrees Celsius maximum or incremental increases above background
pH	7.0 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC. The dimensions and configuration of the mixing zone are shown graphically in Condition S1.B. of the draft permit.

The dilution factors of effluent to receiving water that occur within these zones has been determined in three independent recent analyses. The first, conducted as part of a regional mixing zone study by the Department of Ecology, was published in "Kitsap County Mixing Zone Study," by Norm Glenn and David Giglio, Publication No. 97-328, July, 1997. The second was conducted by Tetra Tech/KCM, consultants for the Permittee, and is contained in the January, 2001 draft of the "Vashon Island Wastewater Treatment Plant Facilities Plan". The third was conducted as part of this analysis for permit reissuance. All three analyses were based on the same outfall model, the EPA Plumes model.

As with any outfall dilution model, many assumptions must be made as to the appropriate data to be used. "Reasonable worst case" conditions for receiving water temperature and salinity profiles, and near-field and far-field current speeds and directions, must be entered into the model, and the model results are sensitive to the assumptions used. Thus it is not surprising that the model results will vary significantly from study to study. The results of the three studies for the Vashon outfall are shown below:

	Glenn & Giglio	Tetra Tech/KCM	This permit analysis
Chronic Dilution Factor	375:1	244:1	332:1
Acute Dilution Factor	50:1	57.6:1	121:1

During the Glenn & Giglio analysis, the diffuser depth was believed to be -30 ft MLLW, but is now known to actually be at -41 ft MLLW, sufficient difference to affect the model results. Also, the Tetra Tech/KCM study had the benefit of actual site-specific field study data for the receiving waters, rather than assumptions as used in this permit analysis. Also, the Tetra Tech/KCM model yielded conservative results. Therefore, the Tetra Tech/KCM analysis results will be used without modification for this permit and fact sheet.

The dilution ratios to be used are shown below, and the Tetra Tech/KCM model runs are found in Appendix L of this fact sheet.

	Acute	Chronic
Aquatic Life	57.6:1	244:1
Human Health, Carcinogen		244:1
Human Health, Non-carcinogen		244:1

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

BOD_5--Under critical conditions, using simple mixing analysis, there would be less than 0.12 mg/L dissolved oxygen depression due to the discharge, even with complete exertion of the BOD_5. Thus, there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitation for BOD_5 was placed in the permit.

Temperature--The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at critical condition. The receiving water temperature at the critical condition is 12 ^{o}C and the effluent temperature is 22 ^{o}C. The predicted resultant temperature at the boundary of the chronic mixing zone is 12.04 ^{o}C and the incremental rise is only 0.04 ^{o}C.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, no effluent limitation for temperature was placed in the proposed permit.

pH--Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6 to 9 will assure compliance with the Water Quality Standards for Surface Waters.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 244:1.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: **chlorine and ammonia**. A reasonable potential analysis (See Appendix I) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit.

The Permittee has recently upgraded from chlorination to ultraviolet radiation to effect effluent disinfection, but chlorination equipment is being maintained on site for possible emergency use. For those potential occasions when chlorine is applied to the effluent, a chlorine effluent limit will be needed. An efluent limit was derived for residual chlorine, which was determined to have a reasonable potential to cause a violation of the Water Quality Standards. Effluent limits were calculated using methods from EPA, 1991 as shown in Appendix K.

The resultant effluent limits are as follows:

Residual chlorine, Mo. Avg	0.29 mg/L
Residual chlorine, Daily Max	0.75 mg/L

It is proposed that these concentrations be included in the permit to be effective only during periods of chlorine application to the effluent.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an

organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. The proposed permit requires the Permittee to conduct toxicity testing quarterly for one year in order to characterize both the acute and chronic toxicity of the effluent.

If acute or chronic toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the proposed permit will set a limit on the acute or chronic toxicity.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the Permittee will not be given WET limits.

If the Permittee makes process or material changes which, in the Department's opinion, result in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard". The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

HUMAN HEALTH

Washington s water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

There is currently very little data available on toxicants in the Vashon effluent. Those toxicants which have been detected, ammonia and total residual chlorine, are not regulated for human health, and thus are not considered further. The discharge will be reevaluated for impacts to human health at the next permit reissuance, when additional toxicant testing data will be available.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED JUNE 21, 1996

Parameter	Existing Limits	Proposed Limits
BOD & TSS, monthly avg conc.	30 mg/L	30 mg/L
BOD & TSS, monthly avg. load	66 ppd	66 ppd
BOD & TSS, weekly avg conc.	45 mg/L	45 mg/L
BOD & TSS, weekly avg load	99 ppd	99 ppd
BOD & TSS, Min. Removal	85 %	85 %
Fecal Coliform, monthly	200/100 mL	200/100 mL
Fecal Coliform, weekly	400/100 mL	400/100 mL
Ph, daily limit	6.0 - 9.0	6.0 - 9.0
Residual Chlorine, Avg. Mo	0.5 mg/L	0.29 mg/L **
Residual Chlorine, Max. Day	1.4 mg/L	0.75 mg/L **
Residual Chlorine, Mo. Load	1.16 ppd *	0.64 ppd **

* Apparently 1.16 ppd was a calculation error in the existing permit. The value should have been 1.10 ppd.

** In effect only when chlorine is used for disinfection.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology s *Permit Writer's Manual* (July 1994, updated 1999) for activated sludge plants with design flow less than 2 mgd. According to this manual, the testing schedule will be the same as in the existing permit.

Additional monitoring will be required per the current EPA permit reapplication form. This additional monitoring will include the following:

The following parameters must be measured in the final effluent at least 3 times during the term of the permit:

Ammonia-N
Dissolved Oxygen
Total Kjeldahl Nitrogen
NO3 + NO2 - N
Oil & Grease
Total Phosphorus
Total Dissolved Solids

For permittees with a delegated pretreatment program, which includes King County, the EPA reapplication form requires "toxicity testing data," also known as Whole Effluent Toxicity (WET) testing, quarterly over a period of one year during the permit cycle. The WET testing requirements were discussed earlier in this fact sheet.

Additionally, delegated pretreatment permittees must conduct "expanded effluent testing," also known as priority pollutant analysis, at least three times during the term of the permit. The parameters which must be tested are listed in Appendix M of this fact sheet.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503. Sludge monitoring for this facility is done at the King County South Plant at Renton.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* The laboratory at this facility is accredited for general chemistry and microbiology.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4. restricts the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the King County Health Department.

All sewage sludge produced at the Vashon wastewater treatment plant is dewatered and hauled to King County's Renton wastewater treatment facility for further treatment and disposal or reuse. As the quality of biosolids/sewage sludge is carefully monitored at Renton, there is no need for duplicative monitoring at Vashon.

PRETREATMENT

To provide more direct and effective control of pollutants discharged, King County has been delegated permitting, monitoring and enforcement authority for industrial users discharging to their treatment system. The Department oversees the delegated Industrial Pretreatment Program to assure compliance with federal pretreatment regulations (40 CFR Part 403) and categorical standards and state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC).

The Department may modify this permit to incorporate additional requirements relating to the establishment and enforcement of local limits for pollutants of concern. Any permit modification is subject to formal due process procedures pursuant to state and federal law and regulation.

DUTY TO ENFORCE DISCHARGE PROHIBITIONS

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges such as cooling water in significant volumes, stormwater and other direct inflow sources other than contaminated industrial stormwater, and wastewaters significantly affecting system hydraulic loading, which do not require treatment. These discharges shall be prohibited unless specifically permitted in the POTW's pretreatment program by ordinance, rule, or policy approved by the Department.

Due to the small capacity of the Vashon Treatment Plant, and the dependency of any local limitation calculation on the size of any proposed industrial discharge, limitations should be evaluated on a case-by-case basis upon receiving applications for industrial discharges.

EFFLUENT MIXING STUDY

The Permittee has recently completed a detailed effluent mixing study. No further mixing study characterization will be required during the term of this permit.

OUTFALL EVALUATION

The Permittee recently conducted an outfall evaluation/inspection. No additional evaluation or inspection is deemed necessary for the term of this permit.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer s Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on September 6 & 13, 2000, in *The Seattle Times* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on April 24, 2002, in the *Vashon Maury Island Beachcomber*, to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 - 160 Ave SE
Bellevue, WA 98008

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility s proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (425) 649-7000, or by writing to the address listed above.

This permit and fact sheet were written by David Nunnallee.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for all known, available, and reasonable methods of prevention, control, and treatment .

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD5 — The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celcius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD5 is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring —Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

   *The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--RESPONSE TO COMMENTS

During the public comment period only one comment was received, that from the Permittee. Section S2.A. "Monitoring Schedule" of the Permit indicates that monitoring for Total Residual Chlorine will be by means of an automatic sampler. The Permittee has indicated that the automatic sampler equipment was removed from operation when the chlorine disinfection system was replaced with the new ultraviolet system. For those uncommon situations when the ultraviolet system fails and the Permittee must use the (now) backup chlorination system, the Permittee requests that effluent sampling for chlorine be conducted by daily grab samples.

Response: The Department's Permit Writers Manual requires a minimum sampling frequency for chlorine, for a treatment facility of the size and type of the Vashon plant, to be daily grab sampling, the same as requested by the Permittee. As such, the Permittee's request is acceptable, and the monitoring type and frequency in Condition S2.A. of the Permit will be changed. The changes will be as follows: Chlorine sampling frequency will be changed from "Constant Automatic Sampler" to "Daily" and the sample type will be changed from "Automatic Grab (6/hr.)" to "Grab".

End of response to public comments.
Respectfully submitted,
David A. Nunnallee

SUPPLEMENTAL APPENDICES:

APPENDIX D -- PLANT SCHEMATIC LAYOUT DIAGRAM

APPENDIX E -- DMR DATA SUMMARY

APPENDIX F -- PLANT PERFORMANCE GRAPHS

APPENDIX G -- TOXICS FOUND IN EFFLUENT

APPENDIX H -- WATER QUALITY CRITERIA FOR TOXICS

APPENDIX I -- REASONABLE POTENTIAL CALCULATION - AQUATIC LIFE

APPENDIX J -- AMMONIA CONVERSION SPREADSHEET

APPENDIX K -- WATER QUALITY BASED PERMIT LIMIT CALCULATIONS

APPENDIX L -- DILUTION ANALYSES FOR OUTFALL

APPENDIX M -- EPA "PART D" NPDES APPLICATION TESTING REQUIREMENTS